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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,030	09/26/2001	Partha P. Datta Ray	L13.12-0117/99-369	9897

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EXAMINER

PHAN, THAI Q

ART UNIT	PAPER NUMBER
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2128

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,030

Applicant(s)

DATTA RAY ET AL.

Examiner

Thai Q. Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-28 is/are allowed.
- 6) ☒ Claim(s) 1,2,11 and 12 is/are rejected.
- 7) ☐ Claim(s) 3-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/03/2001</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

This Office Action is in response to patent application S/N: 09/964,030, filed on 09/26/2001. Claims 1-28 are pending in this Action.

Priority

Cross reference to patent application 09/964,011 must include a relationship with the current application and a current status of the cross reference.

Drawings

The informal drawings are not of sufficient quality, particular quality in Figures. 4, 5, and 6. Accordingly, replacement drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to this Office action. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

Information Disclosure Statement

The information disclosure statement, submitted on 12/03/2001, is being considered by the examiner.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, and 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Lembach et al, US patent no. 4,698,760.

As per claim 1, Lembach anticipates a block based design methodology with design feature limitation very identical to the claimed invention. According to Lembach, the method of optimizing functional block within a netlist of an integrated circuit design, the method comprising:

assigning corresponding delay value to each a plurality of pins the block, wherein each pin corresponds respective signal path through the block and wherein the delay values together form a delay value combination that selected from continuous set of possible combinations which each combination in the set satisfies predetermined criteria (cols. 5-6);

and generating a circuit configuration the block plurality logic cells are interconnected the netlist that the respective signal paths through block have delays based the corresponding delay values assigned step.

As per claim 2, Lembach anticipates each the logic cell has an estimated base delay D_i each delay value in the delay value combination above satisfies first inequality such as delay bound as claimed (col. 4, line 43 to col. 9, line 5), and other inequality as claimed due to delay in signal propagation.

As per claim 11, Lembach anticipates functional blocks comprising logic blocks having multiple inputs with logical connection and property as claimed (Figs. 1 3).

As per claim 12, Lembach anticipates fanout and distribution blocks to fanout, signal paths, multiple outputs, block pins, etc. (cols. 5-8).

Allowable Subject Matter

1. Claims 3-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 3-10 further require steps:

Assigning a corresponding delay value to each of the plurality of pins of each of the plurality of functional blocks based on the current penalty value for that pin,

Identifying critical pin in the netlist,

Updating the current penalty value of the at least one critical pin based on a history of that pin,

Repeating the step of assigning penalty function using the current penalty value for update.

Because Lembach does not expressly disclose or suggest the steps above, dependent claims 3-10 are objected to, but would be allowable for the reason as set forth.

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2. Claims 13-28 are allowed. The following is a statement of reasons for the indication of allowable subject matter: .

Claims 13-28 are directed to a method and system for adaptively timing and optimizing a functional block timing within a netlist of an integrated circuit design. The claims require steps and means:

Assigning a corresponding delay value to each of the plurality of pins of each of the plurality of functional blocks based on the current penalty value for that pin,

Identifying critical pin in the netlist,

Updating the current penalty value of the at least one critical pin based on a history of that pin,

Repeating the step of assigning penalty function using the current penalty value for update.

Because Lembach does not expressly disclose or suggest the steps above, claims 13-28 are thus deemed allowable.

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. US patent no. 6,269,467 B1, issued to Chang et al, on July 2001
2. US patent no. 6,622,291 B1, issued to Ginetti, Arnold, on Sept. 2003
3. US patent no. 6,643,832 B1, issued to Ray et al, on Nov. 2003
4. US patent no. 6,662,348 B1, issued to Naylor et al, on Dec. 2003
5. US patent application publication no. US 2002/0069396 A1 to Bhattacharya et al.

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2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai Q. Phan whose telephone number is 571-272-3783. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached on 571-272-3780. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jan. 07, 2005


Thai Phan
Primary Examiner,
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